

In the Specification:

Rewrite the paragraph at page 1, lines 16-24, as follows:

Digital watermarking is the science of encoding physical and electronic objects with plural-bit digital data, in such a manner that the data is essentially hidden from human perception, yet can be recovered by computer analysis. In physical objects, the data may be encoded in the form of surface texturing, or printing. Such marking can be detected from optical scan data, e.g., from a scanner or web cam. In electronic objects (e.g., digital audio or imagery – including video), the data may be encoded as slight variations in sample values. Or, if the object is represented in a so-called orthogonal domain (also termed “non-perceptual,” e.g., MPEG, DCT, wavelet, etc.), the data may be encoded as slight variations in quantization values or levels. The present assignee’s patent 6,122,403, and application 09/503,881 (now patent 6,614,914), are illustrative of certain watermarking technologies.

Rewrite the paragraph spanning page 2, line 24, through page 3, line 7, to read as follows:

The assignee’s applications 09/503,881 (now patent 6,614,914) and 09/452,023 (now patent 6,408,082) detail certain reference signals, and processing methods, that permit such watermark decoding even in the presence of distortion. In some image watermarking embodiments, the reference signal comprises a constellation of quasi-impulse functions in the Fourier magnitude domain, each with pseudorandom phase. To detect and quantify the distortion, the watermark decoder converts the watermarked image to the Fourier magnitude domain and then performs a log polar resampling of the Fourier magnitude image. A generalized matched filter correlates the known orientation signal with the re-sampled watermarked signal to find the rotation and scale parameters providing the highest correlation. The watermark decoder performs additional correlation

operations between the phase information of the known orientation signal and the watermarked signal to determine translation parameters, which identify the origin of the watermark message signal. Having determined the rotation, scale and translation of the watermark signal, the reader then adjusts the image data to compensate for this distortion, and extracts the watermark message signal as described above.

Rewrite the paragraph at page 3, lines 19-26, to read as follows:

It has been proposed that such paraphernalia be watermarked to assign each item a unique number (e.g., of a limited edition). Such marking can be effected by texturing (e.g., by engraving, etc.), printing (e.g., by silk-screen or otherwise, etc.). To assure that such marking isn't copied onto counterfeit articles, it desirably uses a watermark that does not survive copying (so-called "frail" watermarking). Examples of such frail watermarking are shown in copending applications 09/498,223 (now patent 6,574,350), 09/645,779 (now patent 6,714,683), 60/232,163, 09/689,289, 09/689,293, 09/689,226 (now patent 6,694,041), and 60/247,389. (Use of frail watermarks on trading cards is disclosed in application 09/630,243 (now patent 6,735,324).)

Rewrite the paragraph at page 5, lines 19-21, to read as follows:

Earlier disclosure relating to use of UV inks is provided in copending application 09/562,516 (now abandoned, but the disclosure of which is included in allowed application 09/811,366, filed March 15, 2001). Patent 5,850,481 includes claims directed to texturing the microtopology of a surface to convey a watermark.

Rewrite the paragraph at page 6, lines 10-11, to read as follows:

The use of high-pressure intaglio techniques to texture paper is disclosed in laid-open application WO 200045344 and in pending application 09/127,502 (now patent 6,345,104).

Rewrite the paragraph at page 7, lines 13-15, to read as follows:

In applications 09/670,114 (now abandoned) and 09/151,492 (now abandoned in favor of continuation application 10/693,269, filed October 23, 2003), the present assignee detailed how watermarks can be employed on everyday objects, such as wristwatches, and serve to enable additional features.

Rewrite the paragraph at page 14, lines 2-4, to read as follows:

To provide a comprehensive disclosure without unduly lengthening this specification, the patents and applications cited above are incorporated herein by references reference, with the exception of application 09/811,366.